



REMARKS

Favorable reconsideration and allowance of the present patent application are respectfully requested in view of the the following remarks. Claim 1-15 were pending prior to the Office Action. No claims have been added or deleted. Therefore, claims 1-15 remain pending. Claims 1 and 5 are independent.

By this Reply, claim 1 has been amended merely to enhance consistency amongst the claims (e.g. see claim 5) and to clarify the invention.

35 U.S.C. § 103 Rejection Based on Schulze-Ganzlin and Mouyen

Claims 1-15 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Schulze-Ganzlin et al. (USPN 4,995,062) ("Schulze-Ganzlin") in view of Mouyen (USPN 5,382,798) ("Mouyen"). Applicant respectfully traverses for at least the following reasons.

For a Section 103 rejection to be valid, a *prima facie* case of obviousness must be established. See *M.P.E.P. 2142*. One requirement to establish *prima facie case* of obviousness is that there must be a suggestion or motivation within the cited prior art to modify the references as proposed in the Office Action. See *M.P.E.P. 2143.01*.

The cited prior art must be considered in its entirety including disclosures that teach away from the claimed invention. See *M.P.E.P. 2142.02*. If the cited references teach away from each other, then there is no suggestion

or motivation to combine the prior art and the proposed combination is improper. Also, if the proposed modification renders the prior art unsatisfactory for its intended purpose then, by definition, there is no suggestion or motivation to make the proposed modification. *See M.P.E.P. 2143.01.*

Therefore, if the cited prior art references teach away from each other or the proposed modification renders the prior art unsatisfactory for its intended purpose, the proposed combination is improper and the rejection must fail.

In this instance, Mouyen specifically teaches away from Schulze-Ganzlin. In the Office Action, it is proposed that Figure 2 of Schulze-Ganzlin be modified by adding the sensor as embodied in Figures 1 and 2 of Mouyen. Applicant notes that Figure 2 of Schulze-Ganzlin is part of the radiation detector. The detector includes a scintillator layer 9, a light transmitter 10, and a charge-coupled device ("CCD") sensor 11. *See Figure 2; column 3, lines 1 – 11.* The scintillator layer 9 converts the X-rays into visible light, which is then transmitted by the light transmitter 10 onto the CCD sensor 11. An example of the light transmitter 10 is fiber optics. *See column 3, lines 6 – 7.*

However, Mouyen specifically teaches against including any type of fiber optic system. Mouyen states, "A first remark must be emphasized: ... the sensor of the invention does not comprise an optic fiber system." *Emphasis added; see column 1, lines 51 – 55.* Mouyen goes on to indicate that overall

dimensions of the device may be greatly reduced by not including an optic fiber system. Thus, to the extent that Schulze-Ganzlin teaches using a light transmitter, Mouyen and Schulze-Ganzlin teach away from each other.

Also, if Schulze-Ganzlin is modified by Mouyen as proposed in the Office Action, then Schulze-Ganzlin would be rendered unsatisfactory for its intended purpose. It is admitted in the Office Action that Schulze-Ganzlin does not disclose or suggest all recited features of the claims. For example, it is admitted that Schulze-Ganzlin does not disclose or suggest "guiding emerging X-rays into substantially cylindrical volumes substantially along the axis of the volume" as recited in independent claim 1 (independent claim 5 also recites a similar feature).

However, it is proposed that the sensor as embodied in Figures 1 and 2 of Mouyen be added to the detector as embodied in Figure 2 of Schulze-Ganzlin. Presumably, the group of tubular guides 40 of Mouyen is proposed to be added in between the scintillator layer 9 and the light transmitter 10 to the detector as shown in Figure 1 of Schulze-Ganzlin.

With such modified device, the added tubular guides 40 must transmit visible light to the light transmitter 10 since the scintillator layer 9 serves to convert the X-rays into visible light. But as clearly implicated, the tubular guides 40 of Mouyen with the scintillating material 51 contained therein

severely limits the amount of visible light transmitted from the scintillator layer 9 to the CCD sensor 11 of Schulze-Ganzlin.

As shown in Figure 2 of Mouyen and the corresponding description, it is seen that the relatively low-energy X-ray beam 200 is absorbed very near the surface where the X-ray beam enters the tubular guide. Mouyen goes on to indicate that only a small portion of the light thus generated traverses the length of the tubular guide 40. *See column 3, lines 19-28.* In other words, if the Schulze-Gandin is modified as suggested, the resulting device severely attenuates the amount of light transmitted from the scintillator to the CCD. As such, the Schulze-Ganzlin device would be rendered unsatisfactory for its intended purpose.

As demonstrated above, Schulze-Ganzlin and Mouyen teach away from each other and the proposed combination renders Schulze-Ganzlin unsatisfactory for its intended purpose. For at least these reasons, the combination of Schulze-Ganzlin and Mouyen is improper and may not be relied upon to render obvious claims 1-15. Therefore, Applicant respectfully requests that the rejection of claims 1-15, based on Schulze-Ganzlin and Mouyen, be withdrawn.

CONCLUSION

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and such allowance is respectfully solicited. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Hyung N. Sohn, Reg. No. 44,346, at the number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of \$110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit

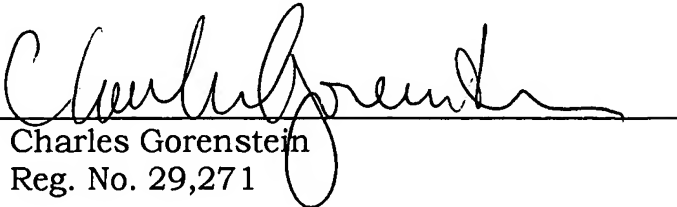
Appln. No. 10/049,597

Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16

• or 1. 17; particularly, extension of time fees.

Respectfully submitted,

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Appln. No. 10/049,597

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

The claims have been amended as follows:

1. (Amended) Method of obtaining a radiographic image of a tooth and of its surrounding area, characterised in that it comprises:

emitting a bundle of X-rays in the direction of said tooth and its surrounding area,

guiding the X-rays, which emerge from said tooth and its surrounding area, in substantially cylindrical [volumes] rods substantially along the axis of said [volumes] rods,

transforming the X-rays, when they are guided in said cylindrical [volumes] rods, into light rays of a greater wavelength than that of the X-rays,

guiding said light rays into a bundle of optical fibres,

converting these light rays into electrical signals, and

processing these electrical signals to produce said radiographic image.

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